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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,105	12/09/2003	Akira Miyamae	117770	2660

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EXAMINER	
SONG, SARAH U	

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/730,105	MIYAMAE ET AL.	
	Examiner	Art Unit	
	Sarah Song	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2006 and 17 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6 and 9-16* is/are rejected.

7)☒ Claim(s) *7,8 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1105,0206*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 1, 2006 has been entered.

2. Claims 1-4 and 6-17 are pending.

Information Disclosure Statement

3. The prior art documents submitted by the applicant in the Information Disclosure Statements filed on November 1, 2005 and February 17, 2006 have all been considered and made of record (note the attached copy of form PTO-1449).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 3, 4 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Greenlaw (U.S. Patent 6,932,518 newly cited).**

6. Regarding claim 1, Greenlaw discloses an optical communication device, comprising: a first substrate 124 having a light-emitting element or a light-receiving element on one side of the first substrate; a second substrate 118 having an electronic circuit to perform operation control of the light emitting element or the light-receiving element; and a flexible substrate 104 which connects a section between the light-emitting element or the light-receiving element and the electronic circuit while achieving impedance matching, the flexible substrate including a microstrip line having a flexible insulating substrate 120, a signal line 114 arranged on one side of the insulating substrate, and a grounding film 116 arranged on the other side of the insulating substrate, and the microstrip line serves the impedance matching function. See column 4, lines 29-48.

7. Regarding claim 3, Greenlaw discloses the first and second substrates being arranged in such a manner as to be nearly at right angles to each other. See Figure 1.

8. Regarding claim 4, one end portion of the flexible substrate is bonded in such a manner as to cover the entire surface of the first substrate. See Figure 1.

9. Regarding claim 15, the first substrate is formed of a non-light-transmitting member, and the light-emitting element or the light-receiving element is arranged back-to-back with one side of the first substrate so that the light-emitting surface of the light-receiving surface is directed toward free space. See column 5, lines 62-66.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. **Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greenlaw as applied to claim 1 and further in view of Brezina et al. (U.S. Patent 6,705,769 previously relied upon).**

12. Regarding claim 2, Greenlaw discloses a transceiver (Figure 7) but does not expressly disclose the first substrate comprising the light emitting element, the light receiving element, and a preamplifier, the preamplifier being mounted in proximity with the light receiving element and converts an output current of the light receiving element to a voltage signal.

13. Brezina et al. discloses a transceiver comprising a first substrate comprising the light emitting element 52, the light receiving element 54, and a preamplifier 58, the preamplifier being mounted in proximity with the light receiving element and converts an output current of the light receiving element to a voltage signal.

14. Brezina et al. is analogous art as pertaining to transceiver structures using flexible cables.

15. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a transceiver structure comprising a common substrate carrier for the light emitting element, the light receiving element, and a preamplifier, the preamplifier being mounted in proximity with the light receiving element and converts an output current of the light receiving element to a voltage signal.

16. One of ordinary skill in the art would have been motivated to make the modification in order to provide ease of manufacture of the transceiver assembly.

17. **Claims 6 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenlaw as applied to claim 1 above, and further in view of Hargis et al. (U.S. Patent 6,792,171 previously relied upon).**

18. Regarding claims 6, 9 and 10-14, Greenlaw discloses the claimed invention but does not disclose the grounding film surrounding the light-emitting element or the light-receiving element; the substrate to be formed of a light-transmitting member, and the light-emitting element or the light-receiving element being arranged so as to face the first substrate; or the light-emitting element or the light-receiving element arranged inside an opening of the flexible substrate, which is made to overlap the first substrate. Greenlaw does not expressly disclose the light-emitting element or the light-receiving element being arranged on the flexible substrate, the flexible substrate having an opening that exposes a light-emitting surface of the light-emitting element or a light-receiving surface of the light-receiving element. Greenlaw also does not expressly disclose lens to collect outgoing light from the light-emitting element or incident light to the light-receiving element, wherein the lens is formed integrally with the first substrate.

19. Hargis et al. discloses TO optical subassembly comprising a first substrate 14 formed of a light-transmitting member, and the light-emitting element or the light-receiving element 11 being arranged so as to face the first substrate; or the light-emitting element or the light-receiving element arranged inside an opening of the flexible substrate 18, which is made to overlap the first substrate. Hargis et al. also discloses the light-emitting element or the light-receiving element arranged on the flexible substrate, which is made to overlap the first substrate. The flexible substrate has an opening that exposes a light-emitting surface of the light-emitting element or a light-receiving surface of the light-receiving element. See Figure 16. Hargis et al.

also discloses a lens 123 to collect outgoing light from the light-emitting element or incident light to the light-receiving element, wherein the lens is formed integrally with the first substrate. See also column 4, lines 39-40.

20. Hargis et al. is analogous art as pertaining to a TO can arrangement comprising a flexible connector.

21. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a light-transmitting first substrate, the light-emitting element or the light-receiving element arranged so as to face the first substrate, the light-emitting element or the light-receiving element arranged inside an opening of the flexible substrate 104, which overlaps the first substrate, the light-emitting element or the light-receiving element arranged on the flexible substrate, which is made to overlap the first substrate, the flexible substrate having an opening that exposes a light-emitting surface of the light-emitting element or a light-receiving surface of the light-receiving element, and a lens to collect outgoing light from the light-emitting element or incident light to the light-receiving element, wherein the lens is formed integrally with the first substrate in the device of Greenlaw. Resultantly, the grounding film of Greenlaw surrounds the light-emitting element or the light-receiving element.

22. One of ordinary skill in the art would have been motivated to make the modification for the purpose of ease of assembly.

23. **Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Greenlaw in view of Brezina et al.**

24. Regarding claim 16, Greenlaw discloses an optical communication device, comprising: a first substrate 124 having a light-emitting element or a light-receiving element on one side of the

first substrate; a second substrate 118 having an electronic circuit to perform operation control of the light emitting element or the light-receiving element; and two flexible substrates 706 and 708, one for a receiving side and one for a transmitting side, each including a microstrip line having a flexible insulating substrate 120 and a signal line. The flexible substrate/microstrip line achieves/serves the impedance matching function. See column 4, lines 29-48.

25. Greenlaw does not expressly disclose a single flexible substrate comprising a signal line on a transmission side arranged on only one side of the insulating substrate, and a signal line on a receiving side arranged on only the other side of the insulating substrate.

26. However, Brezina et al. discloses a single flexible substrate for a transceiver assembly.

27. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the two flexible substrates as a single flexible substrate in the device of Greenlaw since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. Resultantly, the signal line on a transmission side is arranged on only one side (e.g. left side) of the insulating substrate, and the signal line on a receiving side is arranged on only the other side (e.g. right side) of the insulating substrate.

28. One of ordinary skill in the art would have been motivated to make the modification in order to provide ease of assembly.

Allowable Subject Matter

29. Claims 7, 8 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

30. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or fairly suggest, the optical communication device of claim 7 further comprising a first microstrip line including a flexible insulating substrate, a first signal line arranged on one side of the insulating substrate, a first grounding film on the other side of the insulating substrate; a second microstrip line including the insulating substrate, a second signal line arranged on the other side of the insulating substrate, and a second grounding film arranged on the one side of the insulating substrate. Claim 8 would be allowable as depending from claim 7.

31. The prior art of record does not disclose or fairly suggest, the optical communication device of claim 17, further comprising a first grounding film arranged on one side of the insulating substrate, a second grounding film arranged on the other side of the insulating substrate, and a through hole connected to the first grounding film and the second grounding film, and the through hole is arranged only between the signal line on the transmission side and the signal line on the receiving side.

Response to Arguments

32. Applicant's arguments with respect to claims 1-4 and 6-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sarah Song
Primary Examiner
Group Art Unit 2874